REMARKS

Claims 1-66 are pending in this applications.

Summary of Embodiments in Applicants' Invention

An example of one embodiment of Applicant's invention is described below to highlight some aspects of the invention. It should be appreciated that the description below is merely an example of one of many embodiments that fall within the scope of Applicant's claims and is provided for the purpose of highlighting some aspects of Applicant's invention.

In Fig. 1 of the present application, the optical communications receiver 100 includes an optical array 110 having a number of spatially-separated optical detectors 120. Each optical detector includes a respective optical system 130 such as a telescope that is optically coupled to a light-sensing array 140. Each light-sensing array 140 includes a number of individual light sensors 150', 150'', 150''' and so on, which may be photon counting detectors. Because each optical detector in the *array* includes an *array* of individual sensors, the resulting *array of arrays* enables the present invention to receive extremely low power communication signals. In particular, base claims 1, 16 and 27 recite *a plurality of spatially-separated optical detectors* where each optical detector further comprises *a plurality of light sensors*. The resulting instrument is an optical communications receiver having an *array of arrays* – two levels of arrays.

Rejection under 35 U.S.C. §102

Claims 1-2, 5-6, 11, 13-16, 20, 21, 23 and 27 stand rejected under 35 U.S.C. §102 as being anticipated by Villenrotter *et al.* (hereinafter "Villenrotter"). According to the examiner, Villenrotter teaches a plurality of spatially separated detectors, each detector comprising a plurality of sensors, an optical system (telescope) and a processor (FPA SIGNAL PROCESSING). (*See* paragraph 2, page 2 of Office Action.) In support, the examiner cited Fig. 1 and page 3, last paragraph first sentence of Villenrotter.

Applicants respectfully disagree with the examiner's interpretation of Villenrotter. Contrary to the *array of arrays* recited in base claims 1, 16, and 27 of the present application, the instrument disclosed in Villenrotter merely discloses only one level of arrays. Fig. 1 of

Villenrotter describes instantaneous focal-plane signal distribution covering a 16 x 16 detector array using one individual receiver system, namely, a telescope with a 1-m aperture. (*See* Fig. 1 and the first paragraph, first sentence in page 2 of Villenrotter.) According to Fig. 2 of Villenrotter, the receiver consists of a single collecting aperture and optics to focus the collected fields onto the focal plane, where each detector of the array is capable of counting individual photons. (*See* page 2, third full paragraph of Villenrotter.) The 16 x 16 array of Fig. 1 corresponds to the photon counting array of Fig. 2. As such, the instrument taught in Villenrotter consists of only one level of arrays, instead of two levels as in the present invention. That is, contrary to the present invention, where each of detectors in the array includes an additional array, an array of light sensors, the detector array of Villenrotter does not have such an array. Accordingly, Villenrotter does not teach or disclose the present invention recited in base claims 1, 16, and 27. Furthermore, claims 2, 5-6, 11, 13-15, 20, 21 and 23, which depend from claim 1 or 16, are patentable for the same reason.

Accordingly, withdrawal of this rejection is respectfully requested.

Rejections under 35 U.S.C. §103

Claims 3, 4, 7-10, 12, 17-19, 22 and 24-26 stand rejected under 35 U.S.C. §103(a). However, these rejected claims are dependent from base claim 1 or 16. As explained in the previous section, Villenrotter does not teach or suggest all the limitations of base claims 1 and 16, namely, the limitation of a plurality of light sensors in each of the plurality of spatially-separated optical detectors. In particular, claim 4 stands rejected for obviousness over Villenrotter in view or U.S. Patent No. 6,289,104 to Patterson *et al.* (hereinafter "Patterson"). Patterson relates to a system and method for key delivery using quantum cryptography. The detectors used in the receiver in Patterson are photomultiplier tubes or avalanche photo diodes in a Geiger mode. However, unlike the present invention recited in claim 4, Patterson does not disclose that its Geiger mode is non-linear. As such, one skilled in art would not motivated to combine the disclosures of Villenrotter and Patterson to arrive at the present invention recited in claim 4.

In view of foregoing, withdrawal of all the § 103(a) rejections is respectfully requested.

CONCLUSION

In view of the above remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

By _____

H. Joon Chung
Registration No. 52,748
Telephone: (978) 341-0036
Facsimile: (978) 341-0136

Concord, MA 01742-9133

2/27/07